BRAYNIN, I.Ye., professor.

Heat treatment of 35KhGSA chromium-silicon-manganese steel.
Stal' 7 no.2:167-168 '47. (MLRA 9:1)

1.Donetskiy industrial'nyy institut.
(Steel alloys--Heat treatment)

BRAYNIN, I. YE.

Braynin, I. Ye., Budinshteyn, R. I. and Kattenberg, A. R. "The effect of isothermal treatment on the mechnical properties and the microstructure of 6002 spring steel," Trudy Stalinskogo obl. otd-niya VNITOM, No. 1, 1949, p. 100-04 - Bibliog: 6 items

SO: U-5241, 17 December 1953, (Letopis 'Zhurnal 'nykh Statey, No. 26, 1949)

13198* (Change of Linear Dimensions of Steel Samples in Dependence of Heat Treatment Conditions.) Izmenenie lineinykh razmerov stal'nykh obraztsov v zavisimosti ot rezhima termoobrabotki. L. E. Brainin and A. V. Tursunov. Vestnik Mashinostroeniia, v. 34, no. 4, Apr. 1954, p. 65-67.

Results of investigations on steel and steel alloys. Tables, chart. 8 ref.

BRAYNIN, I.Ye., professor; SMOLYANITSKIY, Ya.A., dotsent; BUDINSHTEYN, [redacted], inzhener.

Effect of mixture ratio on the durability of casting molds. Stal'15 no.1:79-81 Ja '55. (MLRA 8:5)

1. Donetskiy industrial'nyy institut.
(Iron founding)

DKHYNIN, I. Ye.

9

5

Influence of charge composition and iron composition on life of ingot molds. I. B. Bruisin, S. I. Shapovalov, B. I. Bialinshtein, V. A. Kharchenko, and R. E. Belousova (Met. Plant, Makeevka). Stal' 16, 1110-15(1956).—An investigation conducted on 600 big-end-down and 647 big-end-up 8-ton ingot molds for detg. the relation between their life and proportion of virgin metal, substitution of high-Si foundry iron with basic iron and silicon pig, and substitution of the former with low-Si foundry iron and silicon pig did not lead to definite conclusions. The change in compn. within the C 3.5–3.8, Si 1.4–1.8, Mn 0.5–0.99, P 0.05–0.12, and S 0.05–0.10% range did not affect the life which ranged from 130.3 to 59 heats for big-end-down and 50.1 to 19 for big-end-up molds.

I. D. Gat

SOV/137-58-11-23376

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 219 (USSR)

AUTHORS: Binusova, N. A., Braynin, I. Ye., Shkuratov, F. I.

TITLE: The Effect of Temperatures of Quenching and Preliminary Stabilization on Tempering Processes in 9KhS Steel (Vliyaniye temperatury zakalki i predvaritel'noy stabilizatsii na protsessy otpuska stali 9KhS)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 93-100

ABSTRACT: Dilatometric methods were employed in investigating the effect of the temperature of quenching and preliminary stabilization (tempering) on the position of temperature lags in transformations occurring during annealing of 9KhS steel. The specimens were quenched in oil from temperatures of 780, 860, and 920°C; tempering operations were performed in conjunction with continuous heating of specimens to 600° as well as in conjunction with preliminary "stabilization" at 150, 260, and 300°. Whereas the temperature corresponding to the termination of the first stage of tempering increases by an insignificant amount, the temperature of the beginning of martensite decomposition increases with increasing quench temperatures. The second transformation point is

Card 1/2

The Effect of Temperatures of Quenching (cont.)

also displaced by tempering. This condition is attributable to an increase in the degree of alloying of martensite and retained austenite (RA). Reheating of quenched specimens which have been tempered for two hours at 150° displaces the temperature of the beginning of decomposition of the RA toward the region of lower temperatures. This may be explained by a reduction of stresses, a decrease in the degree of alloying of martensite, and a reduction of its tetragonal characteristics during the first tempering. A preliminary three-hour tempering at 260-300° is not sufficient to produce complete decomposition of the RA. A second heating, however, brings about the decomposition of the RA at a temperature <300°.

M. Sh.

SOV/137-58-9-19393

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 178 (USSR)

AUTHORS: Kustanovich, V.S., Braynin, I.Ye., Bornatskiy, I.I.

TITLE: An Improved Heat-treatment Process for Punches of 6KhV2S Steel (Utochneniye rezhima termicheskoy obrabotki puansonov iz stali 6KhV2S)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 101-104

ABSTRACT: The purpose of the investigation was the increase in the strength of punches of 6KhV2S steel for piercing holes in rail braces by means of establishing optimum temperatures for their quenching and tempering. The critical points were established by means of quenching from 740-1040°C specimens of steel of the composition (in %) of: C 0.57, Mn 0.34, Si 0.66, W 2.51, Cr 1.08, Ni 0.11, S 0.022, and P 0.016. After quenching the hardness, microstructure, and appearance of the fracture were determined. To study the effect of the tempering temperature and of the rate of cooling after tempering relative to a_k and R_C the specimens, after quenching, were tempered at 180-600° keeping a constant temperature for one hour every

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SOV/137-58-9-19393

An Improved Heat-treatment Process for Punches of 6KhV2S Steel

40 or 50°. It was established that the optimum conditions of the heat treatment of 6KhV2S-steel punches is quenching from 980° (holding the temperature for 15 min) followed by tempering in a lead bath kept at the temperature of the gold-colored oxide film (250-260°).

A.B.

1. Industrial equipment--Production 2. Steel--Mechanical properties 3. Steel --Processing 4. Steel--Test results

Card 2/2

SOV/137-58-9-19394

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 178 (USSR)

AUTHORS: Latysheva, K.A., Braynin, I.Ye.

TITLE: On the Graphitization of 55S2 Steel (O grafitizatsii stali 55S2)

PERIODICAL: Sb. nauchn. rabot stud. Donetsk. industr. in-t, 1957, Nr 2, pp 109-114

ABSTRACT: To investigate the conditions of graphitization (G) of 55S2 steel, a steel of the following composition (in %) was used: C 0.54, Mn 0.78, Si 1.54, Cr 0.03, Ni 0.03, P 0.025, and S 0.018. The rolled metal had the microstructure of sorbitic pearlite with a fine ferrite lattice. The critical points Ac_1 780°C and Ac_3 840° were established by the method of incremental quenching. To accelerate the process of G and to obtain finer and more uniform graphite formations, the specimens (S) before annealing were quenched in water after being heated to 900, 1000, and 1100°. The structure obtained was that of martensite with R_C 63. S differing only in their tempering temperature were separated in batches (B) and then underwent joint heat treatment. The first B was annealed at 680° for 44 hours and had the structure of granular pearlite without

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SOV/13[illegible]-19394

On the Graphitization of 55S2 Steel

formations of graphite. The first and second B underwent graphitizing annealing at 740° for 120 hours followed by cooling in water; the structure was martensite, ferrite, and separate formations of graphite with R_C 20. S quenched from 1000° was annealed for 10 hours at 760° and had a structure of granular pearlite. Then, together with the third B it underwent the graphitizing annealing at 740° for 12 hours. The structure of all these S was granular pearlite. As the result of various conditions of heat treatment of S it is established that the use of 55S2 spring steel for G is not expedient, because the process of G of the given steel progresses very slowly; the elevation of the quench temperature to $\geq$ 900° does not accelerate the G process of the structure.

1. Steel--Processing 2. Steel--Structural analysis 3. Graphite--Metallurgical effects

G.Z.

Card 2/2

BRAYNIN I YE

122-3-8/30

AUTHOR: Seleznev, N.N., Engineer, Braynin, I.Ye, Professor, and Kuleshov, P.I., Candidate of Technical Sciences, Dotsent.

TITLE: On the Nature of the Bright Zone in the Layer Adjoining the Friction Surface of Steel (O prirode svetloy zony v sloye, prilegayushchem k poverkhnosti treniya stali)

PERIODICAL: Vestnik Mashinostroyeniya, 1957, No.3, pp. 35 - 39 (USSR)

ABSTRACT: The white layer observed under the surface of machined components which have been subjected to wear and friction has been explained in a variety of ways. Saturation with nitrogen from the air, presence of oxygen compounds, dislocation of the austenite lattice and quenching from high temperatures are plausible theories. Tests were carried out in the Institute's laboratory on samples of low carbon, medium carbon and chromium tool steel. Machines of the МИ type (Moscow Experimental Plant for Testing Machines and Weights) (Moskovskiy Eksperimental'nyy Zavod ispytatel'nykh mashin i vesov) and the ТМИ type of the Donets Industrial Institute (Donetskiy Industrial'nyy Institut) were used with a wide variation of sliding speeds and loads. Sliding friction tests with and without lubrication with "Avtol" oil were conducted. The samples consisted of 7 mm thick rollers

Cardl/4 of 35 and 50 mm dia. rubbing against blocks of 10 mm thickness

On the Nature of the Bright Zone in the Layer Adjoining the Friction Surface of Steel.

with an enveloping angle of 66, 80 and 180°. Samples for the larger TMM machines were sleeves of 90 mm outside dia. and 70 mm inside diam. either 15 mm or 100 mm long. The sleeves rotate inside the bearing bushes forming the counterpart of the sliding pair. In the smaller machines the specific pressure varied between 15 and 50 kg/cm² under dry friction and between 25 and 100 kg/cm² with lubrication. The speed varied between 0.367 and 1.067 m/sec. In the larger machines the pressure under dry friction was 30 - 60 kg/cm², with lubrication, 60 - 90 kg/cm², the speed varied between 1.22 and 4.05 m/sec. Metallographic analysis of the micro-structure, hardness and micro-hardness measurements, X-ray structure and spectral analyses and temperature measurements in the contact zone were employed. The finer structure of the layer underneath the surface reveals a complex pattern which is the white layer. A micro-thermocouple with its junction 0.2 mm underneath the surface of the block or bearing sleeve revealed temperatures of up to 550-600 °C in the smaller machines and up to 700-850 °C in the larger machines. The results obtained and illustrated by micro-photographs show that during the wear process, there is a concentration of carbon in the surface layer. At first, under

On the Nature of the Bright Zone in the Layer Adjoining the Friction Surface of Steel.

the influence of shear and direct stresses, a plastic deformation of structural components takes place. The grains are drawn out, flattened and subsequently broken up and inter-mixed, forming a highly-disperse ferrite-cementite mixture. Subsequently, owing to the squeezing out of the ferrite and its wearing away, the surface becomes enriched with cementite. The high temperatures at the surfaces assist the diffusion of carbon from the counterpart body surface. This diffusion was proved also by the presence of chromium in tests where it could only have originated in the counterpart surface. Under the influence of temperature and residual stresses, the process of coagulation of separate cementite grains also takes place. Austenite is formed as a result of surface heating and deformation and by rapid cooling this austenite is largely transformed into martensite. However, the more bulky cementite formations are not dissolved and therefore the bright layer consists of martensite, residual austenite and alloyed cementite.

There are 11 figures, including 9 photographs and 2 graphs, 2 tables and 8 references, 7 of which are Slavic.

On the Nature of the Bright Zone in the Layer Adjoining the Friction Surface of Steel. 122-3-8/30

ASSOCIATION: Donets Industrial Institute imeni N.S. Khrushchev (Donetskiy industrial'nyy institut imeni N.S. Khrushcheva)

AVAILABLE: Library of Congress.

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BRAynin. I. Ye.

AUTHOR: Braynin, I. Ye. and Shapovalov, S.I. 117

TITLE: Influence of the degree of vacuum and of the temperature of overheating on the structure of iron. (Vliyanie vakuuma i temperatury peregreva na strukturu chuguna.)

PERIODICAL: "Fizika Metallov i Metallovedenie" (Physics of Metals and Metallurgy), 1957, Vol.IV. No.1 (10), pp.115 - 122 (U.S.S.R.)

ABSTRACT: For studying the influence of vacuum and of the over-heating temperature of liquid iron on its structure conical specimens weighing 200 g of the following chemical composition were produced by casting from cupola iron: 3.68% C; 1.50% Si; 0.63% Mn; 0.072% P and 0.078% S. The specimens were re-molten in magnesite and graphite crucibles of 36 mm inner dia. and 50 mm height. It was found that at high over-heating temperatures of the liquid iron in the magnesite crucibles inside a reducing atmosphere (CO + N_2) the sulphur content is lowered considerably and the active iron oxides on the surface are reduced. Consequently, the surface tension at the inter-phase boundary liquid melt - graphite increases, which brings about a crystallisation of the graphite in the form of a super-cooled graphite eutectic. Production of globular graphite without modification additions by over-heating the melt to 1 700 - 1 800 °C in a reducing atmosphere indicates that the formation of globular graphite is due to an increase in the surface tension of the inter-phase boundary melt-graphite. An

Influence of the degree of vacuum and of the temperature of over-heating on the structure of iron. (Cont.)

increase in the surface tension at the boundary liquid melt-graphite as compared to the tension at the boundary liquid melt-austenite leads to the formation around the graphite separations of a continuous austenite shell. Further growth of the graphite separations takes place in a uniform medium and is determined by the character of removal of the iron ions from the crystallisation front of the graphite and this leads to the formation of globular graphite. A decrease in the dimensions of the graphite particles is brought about by an increase in the degree of over-heating of the liquid iron, re-melting in vacuum and reduction of the sulphur content; these factors cause an increase in the surface tension at the boundary liquid melt-graphite and favour crystallisation of the iron under conditions of super-cooling. These phenomena explain the formation of globular graphite without any inoculations in the case of over-heating of iron with traces of sulphur to 1 700 °C in a reducing atmosphere. The authors consider it advisable to carry out tests under shop conditions for producing high strength spheroidal iron with inoculations by over-heating the melt in an electric furnace inside a reducing atmosphere which would lead to a reduction of the oxides dissolved in the iron and sulphur removal. 2 tables, 5 figures, 7 references, 3 of which are Russian.

Donets Industrial Inst. imeni N.S. Krushchev.

Recd. January 16, 1956.
After revision recd. Apr. 4, 1956.

AUTHORS: Braynin, I. Ye., Prof. and Gubenko, N. V., Eng. 129 -9- 1/14

TITLE: Influence of the brand composition of soft sheet steel on its impact strength and its tendency to aging. (Vliyaniye marochnogo sostava myagkoy listovoy stali na udarnuyu vyazkost' i sklonnost' yeye k stareniyu).

PERIODICAL: "Metallovedeniye i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.9, pp.2-4 (U.S.S.R.)

ABSTRACT: According to literary data increased contents in the steel of manganese and phosphorus do not show an influence on its tendency to mechanical ageing (1-3). The authors found no literary data on the influence of other admixtures on the carbon steel and, therefore, they studied this problem statistically on a large number of heats. The investigation was carried out on basic open hearth "Steel 3" produced in 30 ton open hearth furnaces by the scrap process. The metal was deoxidised in a ladle by means of a 45% ferrosilicon so as to obtain 0.12-0.20% Si in the finished steel. In addition, 1 kg of aluminium per ton of liquid steel was fed into the ladle. The cast ingots weighed 1.5 tons and it was rolled into 10 mm thick sheet. The composition of the individual melts varied between the following limits: 0.12-0.18% C; 0.35-0.55% Mn; 0.12-0.20% Si; 0.016-0.036% P; 0.026-0.040% S.

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Influence of the brand composition of soft sheet steel on its impact strength and its tendency to aging, (Cont.) 129-9-1/14

For statistical evaluation the results were used of impact tests of 1720 sheets of 285 different melts in the as rolled state and after mechanical ageing. For each melt the average value of the impact strength was obtained from tests on 3 to 15 sheets, testing two specimens for each sheet. Data on the influence of the carbon content on the impact strength before and after ageing are given in Table 1, data on the influence of manganese on the impact strength before and after ageing are given in Table 2, whilst Tables 3 to 5 give the respective influences on the impact strength before and after ageing of Si, P and S. Finally, in Table 6, data are given on the relative influence of carbon, manganese, phosphorus and sulphur on the impact strength before and after ageing. Increase of the contents of carbon, manganese, phosphorus and sulphur, within the tolerances of the investigated grade of steel, reduces its impact strength in the as rolled state and after mechanical ageing but does not affect its tendency to ageing. Increase of the Si content does not affect the impact strength in the as rolled state but reduces somewhat the tendency to ageing as a result of an increase in the content of metallic aluminium owing to the lower rate

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Influence of the brand composition of soft sheet steel on its impact strength and its tendency to aging. (Cont.)

of burning off during deoxidation.
There are 6 tables and 3 references, one of which is Slavic.

ASSOCIATION: Donets Industrial Institute. (Donetskiy Industrial'nyy Institut).

AVAILABLE: 129-9-1/14

Card 3/3

SOV/137-57-11-22368

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 247 (USSR)

AUTHORS: Braynin, I.Ye., Budinshteyn, R.I., Kharchenko, V.A.

TITLE: How the Mechanical Properties of Cast Iron Affect Mold Life (Mekhanichskiye svoystva chuguna i stoykost' izlozhnits)

PERIODICAL: Tr. Donetsk. industr. in-ta, 1957, Vol 19, pp 19-36

ABSTRACT: Results of studies by the Donets Industrial Institute as to mold (M) life relative to the mechanical properties of cast iron are presented. The strength (S) and ductility of specimens from the inside surface of the M are higher than from the outside. The mechanical properties of specimens taken directly from the body of the M are higher than from samples cast in M. In the case of molds that had lasted through only a small number of heats (47), the highest S is shown by specimens from the inside surface, while specimens from the middle of the wall showed the highest in the case of M that had lasted for a large number of heats (102). S and M hardness diminish with use, whereas ductility, on the other hand, increases. The microstructure of a M that had endured 102 heats showed oxides and cracks to be present at 5-7 mm from the inside surface,

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How the Mechanical Properties of Cast Iron Affect Mold Life

and decomposition of the pearlite cementite throughout the thickness of the M wall, halfway up the wall. It is concluded that S declines as the graphitization constants rise (owing to increase in Si) and with use, while ductility rises. When M are cast in semipermanent shapes it is recommended that the latter be preheated to 250-300°. This makes for a larger primary grain and more favorable graphite shape, and also increases the mechanical properties and service life of the M.

N.Z.

BRAYNIN, I.YE.

AUTHOR: BRAYNIN, I.Ye., SHAPOVALOV, S.I. 32-6-39/54

TITLE: The Selection of Cast Iron Samples. (O Metodike otbora prob chuguna, Russian)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 750-751 (U.S.S.R.)

ABSTRACT: For the chemical analysis of cast iron samples the latter are taken in a depth of 200-300 mm from the surface. For white pig iron wedge-shaped samples are taken for bleaching. According to the temperature of the samples taken they were divided into three groups: I = at 1220 - 1240°, II = 1245 - 1265° and III = 1270 - 1290°.

The chemical composition of all three groups was the same and corresponded to the graphitization constant 5,75. The average depth of bleaching was for the I. group - 5,63 - 5,94 mm, for the II. group - 4,60 - 6,51 mm, and for the III. group 3,90 - 7,06 mm. This shows that with an increase of the temperature of the white pig iron the bleaching depth of the wedge-shaped samples is reduced to 3,9 mm.

The second table shows the content of admixtures in cast iron samples at 1240°, 1260° and 1280°, which shows that for the first group 1,54-1,58% silicon, 1,56% for the II. group, and 1,58% silicon

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32-6-39/54

The Selection of Cast Iron Samples.

for the III. group was present.
The manganese content was 0,64, 0,67, 0,70%, and that of sulphur 0,065, 0,071 and 0,075%. Therefore samples for chemical analysis are taken at a depth of 200 - 300 mm from the surface.

ASSOCIATION: Donets Industrial Institute
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

BRAYNIN, I. YE

133-58-3-26/29

AUTHORS: Braynin, I.Ye., Professor, Bornatskiy, I.I., Candidate of Technical Sciences and Alferov, K.S., Engineer

TITLE: Increasing the Durability of Large Ingot Moulds by Means of Reinforcement (Povysheniye stoykosti krupnykh izlozhnits putem armirovaniya)

PERIODICAL: Stal', 1958, Nr 3, pp 267 - 270 (USSR)

ABSTRACT: In the open-hearth melting shop of the Makeyevsk Works, two types of ingot moulds were in general use: wide end up, closed bottom with hot tops for ingots weighing 6.2 tons and both ends open moulds for rimming steel for ingots weighing 6.7 tons (data in Table 1). The service life of the first type of mould was 27 casts (consumption 42.5 kg/t of steel) and of the second type 68 casts (18.9 kg/ton). Efforts to increase the life of moulds by suitable adjustment of the chemical composition of iron did not produce any substantial results. As the next step, the use of reinforcing bandages was tried without any change in the design of the moulds. As the results obtained were encouraging, various designs of bandages were tried (Fig.1) with simultaneous increase in the wall thickness of moulds. The final design adopted for both types of moulds is shown in Figs. 2 and 3. These modifications considerably improved the life of the moulds (approximately 2.2 - 2.5 times). The

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Increasing the Durability of Large Ingot Moulds by Means of Reinforcement

comparison of the consumption of moulds without and with reinforcing bandages is given in Table 2. The following members of the NTOChM participated in the work: S.V. Vasil'-yev, V.S. Kaprov, Ye.I. Baranov, L.Z. Yemets, V.I. Kharina and L.B. Dolmat. There are 2 tables and 3 figures.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute) and
Makeyevskiy metallurgicheskiy zavod (Makeyevka Metallurgical Works)

AVAILABLE: Library of Congress

18(7)
AUTHORS: Braynin, I. Ye, Kharchenko, V. A., Kondrashov, A. I. SOV/163-58-4-40/47

TITLE: Influence of Homogenization on the Position of the Critical Points in Chrome-Nickel-Molybdenum Steel (Vliyaniye gomogenizatsii na polozheniye kriticheskikh tochek v khromonikel'molibdenovoy stali)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, Nr 4, pp 229-231 (USSR)

ABSTRACT: The chrome-nickel-molybdenum steel 42KhN3M was investigated here. It shows a special inclination to the segregation of dendrites and has the following chemical composition : 0.42% C, 0.50% Mn, 0.30% Si, 0.83% Cr, 2.90% Ni, 0.30% Mo, 0.022% P, 0.018% S. The critical points were determined on the differential dilatometer with optical recording. On account of the investigation, it was ascertained that a previous homogenization of the chrome-nickel-molybdenum steel has an influence on the position of the critical points as follows: 1) The points A_{c_1} and A_{c_3} rise a little. 2) In cooling at a speed below the critical speed, the point of the beginning

Card 1/2

decomposition of beynite falls, and the point of the beginning conversion of martensite rises. 3) In cooling at a speed equal to or higher than the critical speed, the initial point of martensite conversion M_n falls at the expense of the concentration increase in carbon and the alloying elements in the dendrite axes. There are 1 figure and 3 references, 2 of which are Soviet.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute)

SUBMITTED: October 26, 1957

133-58-4-22/40

AUTHORS: Braynin, I. Ye., Professor, Kharchenko, V. A. and Kondrashov, A. I., Engineers

TITLE: The Influence of Internal Stresses on the Formation of Flakes (Vliyaniye vnutrennikh napryazheniy na obrazovaniye flokenov)

PERIODICAL: Stal', 1958, Nr 4, pp 342-348 (USSR)

ABSTRACT: The investigation was carried out in order to determine the influence of additional stresses on the formation of flakes under real production conditions without an artificial saturation of metal with hydrogen. Specimens from forgings of 40KhN steel of the following composition %: C 0.39; Mn 0.62; Si 0.22; Cr 0.65; Ni 1.2 were taken for the investigation. Steel 4KhN possesses a considerable hardenability on cooling in water and at the same time its supercooled austenite is comparatively little stable in the upper subcritical zone and no cooling in hot ash or scale even in small forgings, with transverse dimensions 70-80 mm, is completely transformed above 600°C. Moreover, this steel is flake sensitive. Semis were forged from 3 ton ingots which after stripping were slowly cooled during 6 hours in a pit, then heated in a furnace to

Card 1/3

The Influence of Internal Stresses on the Formation of Flakes

forging temperature and forged in a press to a cross section of 150 x 150 in the temperature range 1180-960°C. Specimens were cut out from the lower part of the ingot after crop bottom. Altogether eight specimens were prepared which were variously treated (a description is given) in order to obtain various kinds of stresses (mechanical, thermal, structural). After three days all specimens were tested for the presence of flakes by the following methods: a) ultrasonic test in order to detect discontinuities and to determine their depth and direction; b) cutting out templets and making sulphur prints; c) control of the templets for flakes with magnetic defectoscope and by deep etching with ammonia persulphate and nitric acid; d) study of fracture and micro-structure in places where flakes were found and hardness across the cross-section of specimens. The results of the control on the presence of flakes are assembled in Fig.2. Conclusions: The results obtained confirmed the conclusions of the investigators (Refs.2 and 8) who considered the formation of flakes results from the joint action of hydrogen and tensile stresses (mechanical, thermal, structural). Artificially induced tensile stresses

The Influence of Internal Stresses on the Formation of Flakes

(mechanical, thermal, structural) can cause the formation of flakes outside the central zone in which on cooling in air flakes are not formed. In the external part of semis, where the hydrogen content is insignificant, flakes are not formed even under the influence of comparatively large tensile stresses. Compressing stresses even insignificant ones, can prevent the formation of flakes in the centre, i.e. in the zone of maximum hydrogen content. Large forgings should be slowly cooled in order to prevent the formation of flakes as a result of the appearance of thermal tensile stresses.
There are 9 figures and 13 references, 7 of which are Soviet, 2 English, 2 German, 1 French, 1 Japanese.

ASSOCIATIONS: Donetskiy industrial'nyy institut (Donets Industrial Institute) and Novo-Kramatorskiy metallurgicheskiy zavod (New Kramatorsk Metallurgical Works)

1. Steel--Surface properties--Stress effects

Card 3/3

SOV/24-58-5-9/31

AUTHORS: Braynin, I. Ye., Kondrashov, A. I. and Kharchenko, V.A. (Stalino)

TITLE: The Effect of Homogenisation on the Stability of Supercooled Austenite in Chromo-Nickel-Molybdenum Steel (Vliyaniye gomogenizatsii na ustoychivost' pereokhlazhdennogo austenita v khromonikel'molibdenovoy stali)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 5, pp 54-58 (USSR)

ABSTRACT: The effect of homogenising treatment (diffusion annealing) on the kinetics of the isothermal transformation of austenite was investigated by the magnetometric method on two types of steel of the following composition:

Steel	Mark	C	Mn	Si	Cr	Ni	Mo	P	S
A	35KhN3M	0.34	0.50	0.32	0.97	2.98	0.33	0.030	0.027
B	35KhNM	0.33	0.47	0.25	0.95	1.54	0.36	0.026	0.025

The critical points of the two steels determined by dilatometric measurements are given below:

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The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

Steel	On heating		On cooling	
	Ac_1	Ac_3	Region of Bainite Transformation	Start of the martensitic transformation M
A	690°C	770°C	470-270°C	310°C
B	730°C	800°C	480-320°C	340°C

The samples used for the preparation of the experimental test pieces were cut out from 6-ton forgings of 600 mm diameter, at a distance of a half of the radius from the surface. The homogenising treatment consisted of holding for 6 hours at 1200 or 1255°C in the case of steel "A", and 3 or 6 hours at 1255°C in the case of steel "B". All test pieces were protected from oxidation by a layer of electrodeposited chromium. The isothermal transformation of the austenite was studied at 300°C in steel "A", and at 300 and 650°C in steel "B". The results, tabulated and graphed in the form of percentage of

The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

decomposed austenite-versus-time curves, show that the time required for complete decomposition of supercooled austenite and the incubation period in homogenised steel "A" are respectively 2-3 and 100-150 times shorter than in the untreated material. In the case of steel "B" treated isothermally at 650°C, the preliminary homogenising treatment shortened the time required for complete decomposition by a factor of 1.5, and the incubation period by a factor of 5. The results of the magnetometric measurements were confirmed by microscopic examination which revealed that after identical isothermal treatment the proportion of retained austenite was considerably higher in specimens subjected to a preliminary homogenising treatment. The fact that this treatment which should normally result in an increase of the incubating period had in fact an opposite effect is attributed to the formation of ultramicroscopic domains saturated with sulphur and denuded of carbon. Such domains were detected microscopically in alloy steels heated to 1250°C and

The Effect of Homogenisation on the Stability of Super-cooled Austenite in Chromo-Nickel-Molybdenum Steel

higher temperatures.
There are 6 figures, 2 tables and 10 references, 7 of which are Soviet, 3 English.

ASSOCIATION: Donetskiy industrial'nyy institut (Donets Industrial Institute) and NKMZ

SUBMITTED: July 3, 1957

BRAYNIN, I.Ye., prof.

Patenting in two baths. Izv.vys.ucheb.zav.; chern.met. no.6: 141-147 Je '58. (MIRA 12:8)

1. Donetskie industrial'nyy institut. Rekomendovano kafedroy metallovedeniya i termoobrabotki Donetskogo industrial'nogo instituta.
(Steel--Heat treatment) (Wire drawing)

129-58-7-10/17

AUTHORS: Braynin, I. Ye, Doctor of Technical Sciences Professor, Kondrashov, A. I. and Kharchenko, V. A., Engineers

TITLE: Improvement of the Technology of Heat Treatment of Cold Rolling Rolls Made of the Steel 9KhF. (Usovershenstvovaniye tekhnologii termicheskoy obrabotki valkov kholodnoy prokatki iz stali 9KhF)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 7, pp 43-46 (USSR)

ABSTRACT: From 1949 onwards the authors' parent factory started producing the rims of rolls for cold rolling from 9KhF steel produced in an open hearth furnace using the ordinary method of "precipitation deoxidation". This steel is less inclined to form cracks and floculi than the earlier used eutectoidal steel 65KhMF. In this paper the results are given of investigations of this steel. The rims were produced by forging from ingots weighing 27 tons. The temperature at the beginning of forging was 1150 to 1180°C, the temperature at the end of forging was 800 to 900°C. The forgings had the following final dimensions: outside diameter 1300 mm, inside diameter 700 mm, length 2050 mm. One batch was forged in a single operation a

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Improvement of the Technology of Heat Treatment of Cold Rolling Rolls Made of the Steel 9KhF

second batch was forged in two operations with an intermediate annealing which is described in great detail. The following conclusions are arrived at:

1) An appreciable grain growth and over-heating of the steel 9KhF takes place above 950°C when the secondary carbides dissolve in the austenite.

2) An increase of the austenization temperature from 830 to 960°C improves the stability of the super-cooled austenite, increases the temperature of its minimum stability in the pearlitic range and reduces its martensitic point.

3) Forging of backing roll rims for cold rolling rolls brings about a reduction in the size of the primary grain and an improvement in the macro-structure of the metal.

4) The two-stage regime of isothermal annealing developed by the authors and described in the paper obviates the necessity of normalisation annealing for eliminating the floculi of the carbide grid and ensures a satisfactory hardness and good machineability.

5) The described regimes of hardening (through water in oil) and tempering ensures obtaining the necessary hardness at the surface of the rolls with a minimum of the residual internal stresses.
There are 5 figures.

ASSOCIATIONS: Donetskiy industrial'nyy institut (Donets Industrial Institute) and Novo-Kramatorskiy Zavod (Donbass) (Novo-Kramatorskiy Works, Donbass)

SOV/128-58-12-10/21

AUTHORS: Braynin, I.Ye., and Shapovalov, S.I.

TITLE: The Effect of Liquid Cast Iron Temperatures on the Depth of Chilling in V-Shaped Specimens (Vliyaniye temperatury zhidkogo chuguna na glubinu otbela klinovidnykh prob)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 12, pp 19 - 20 (USSR)

ABSTRACT: To determine the effect of liquid cast-iron temperatures inside the cupola trough on the depth of chilling in V-shaped specimens, two series of tests were carried out by D.S. Kirin, V.A. Kharchenko and G.Ye. Rybalko. Liquid cast iron was taken from the surface of the ladle, and from a depth of 200 - 250 mm, at temperatures ranging from 1,220 to 1,290°C. A comparison of the results proved that the effect of the temperature on chilling was different in both series, i.e. that higher temperatures caused an increased chilling depth. If the cast iron is taken from a certain depth of the ladle, the depth of chilling in V-shaped spe-

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The Effect of Liquid Cast Iron Temperatures on the Depth of Chilling in V-Shaped Specimens

cimens increases with higher temperatures of the cast iron in the trough. There are 2 tables, 1 diagram, 1 photo and 3 references, 1 of which is German and 2 Soviet.

BRAYNIN, I.Ye., prof.; KHARCHENKO, V.A., inzh.; KONDRASHOV, A.I.

Experimental investigation of stress distribution in the cross section of a blank deformed by bending in association with flake formation. Izv. vys. ucheb. zav.; chern. met. no.12:73-77 D '58. (MIRA 12:3)

1.Donetskiy industrial'nyy institut i Novo-Kramatorskiy zavod tyazhelogo mashinostroyeniya.
(Deformations (Mechanics))
(Steel--Metallography)

S/137/61/000/011/092/123
A060/A101

AUTHORS: Braynin, I. Ye., Kharchenko, V. A., Kondrashov, A. I.

TITLE: The effect of homogenization on the mechanical characteristics and flake sensitivity of chrome-nickel-molybdenum steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 9, abstract 11I52 ("Tr. Donetsk. industr. in-ta", 1958, 32, 5-23)

TEXT: An investigation was carried out as to the effect of homogenization upon the mechanical characteristics (σ_b, σ_s, δ, ψ, a_k), H_B, and the microhardness of specimens cut out of various zones of forgings of steel 42XH3M (42KhNZM) (6 ton ingot) and 34XH3M (34KhNZM)(15.9 ton ingot), and also upon the flaking sensitivity of these steels. It was established that the homogenization of specimens of steel 34KhNZM cut out of the outside zone at 1,150°C for 10 hours raises the δ, ψ, and the a_k. Homogenization of large forgings at 1,180-1,200°C for 6 hours has no noticeable effect upon the lowering of flaking sensitivity and the raising of δ, ψ, and a_k of transversal specimens. There are 33 references.

T. Fedorova

[Abstracter's note: Complete translation]

Card 1/1

36803
S/137/62/000/004/087/201
A052/A101

18.7500

AUTHORS: Braynin, I. Ye., Kondrashov, A..I., Kharchenko, V. A.

TITLE: The basic characteristics of 9 ХФ (9KhF) steel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 14, abstract 4I91 ("Tr. Donetsk. industr. in-ta", no. 32, 1958, 169 - 175)

TEXT: On samples cut out from forged 9KhF steel assays selected from 1.25-ton ingots, the following characteristics were determined: temperature Ac_1, microstructure and the kind of fracture of hardened samples, the size of austenite grain, hardenability and the kinetics of isothermic austenite decomposition, hardness and a_k as a function of the tempering temperature after hardening, tendency to temper brittleness. By means of finishing forging at temperatures from 900 to 700°C, cooling at different V_{cool} and additional normalizing, the ways of preventing the appearance of the carbide skeleton in microstructure were looked for. It has been established that the overheating of 9KhF steel begins from hardening temperature of > 950°C in connection with the solution of secondary carbides. An increase of austenizing temperature from 830 to 860°C raises the

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S/137/62/000/004/087/201
A052/A101

The basic characteristics of 9ХФ (9KhF) steel

stability of overcooled austenite, increases the temperature of its minimum stability in the subcritical interval, and reduces the M_H temperature. 9KhF steel has no tendency to temper brittleness at 300 - 450°C. The carbide skeleton in the central zone of forgings could be eliminated only by the application of normalizing at 950 - 960°C.

L. Frumer

[Abstracter's note: Complete translation]

Card 2/2

18(3) SOV/163-59-2-14/48

AUTHORS: Braynin, I. Ye., Shapovalov, S. I.

TITLE: Influence of Magnesium on the Boundary Angle of the Moistening of Graphit by Liquid Cast Iron (Vliyaniye magniya na krayevoy ugol smachivaniya grafita zhidkim chugunom)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 2, pp 74-77 (USSR)

ABSTRACT: The mechanism of the influence of magnesium on the formation of globular graphite has not yet been fully clarified. A few years ago, it was found (Ref 6) that the surface tension of the liquid magnesium-containing cast iron is by 40-50% higher than that of ordinary cast iron. There are no publication references on the influence mentioned in the title. The experiment was carried out with samples of cast iron which contained 0.06% of magnesium. The samples were exposed to a temperature of 1350° for various periods of time; cylinders 7 mm high with a diameter of 7 mm were then cast of them. They were heated over the melting point on an exactly horizontal graphite plate, and then cooled down rapidly. A table shows that after a long action of the temperature of 1350° the magnesium content was reduced due to oxidation, and the boundary

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Influence of Magnesium on the Boundary Angle of the Moistening of Graphite by Liquid Cast Iron

angle decreased from 167° to 140°. The form of the graphite precipitations in the samples changed from fine-grained and globular to lamellar and eutectic (Figs 1 and 2). From the general equation for the capillarity, a surface tension is computed which is by 588 erg/cm^2 higher for the magnesium-containing cast iron than for the ordinary cast iron. There are 2 figures, 1 table, and 7 references, 4 of which are Soviet.

ASSOCIATION: Donetskiy industrial'nyy institut
(Donets Industrial Institute)

SUBMITTED: July 31, 1958

BRAYNIN, I.Ye., prof.; SHAPOVALOV, S.I., kand.tekhn.nauk.

Characteristics of floc formation in hypereutectoid steel. Izv.vys.ucheb.zav.; chern.met. 2 no.6:81-82 Je '59. (MIRA 12:1)

1. Donetskiy industrial'nyy institut. Rekomendovano kafedroy metallovedeniya i termoobrabotki Donetskogo industial'nogo instituta.
(Steel--Metallography)

BRAYNIN, I.Ye., prof.; GUBENKO, N.V., inzh.

Effect of the method of introducing aluminum on the quality of hearth steel. Izv.vys.ucheb.zav.; chern.met. 2 no.10: 89-99 O '59. (MIRA 13:3)

1. Donetskiy industrial'nyy institut.
(Steel--Metallurgy) (Aluminum)

BRAYNIN, I.Ye., prof.; IVANOV, A.I., inzh.

Scientific and technical conference in the metallurgical department of the Donets Industrial Institute. Izv.vys.ucheb.zav.; chern. met. no.5:149-152 My '59. (MIRA 12:9)

1. Donetskiy industrial'nyy institut.
(Metallurgical research)

BRAYNIN, I.Ye.; SELEZNEV, N.N.

Effect of the structure of the pearlite component on the wear resistance of steel. Trudy DII 36 Ser.met. no.6:63-71 '59. (MIRA 14:9)

(Steel--Metallography) (Mechanical wear)

AMINEV, A.M., prof.; BEREZOV, Ye.L., prof.; BISENKOV, N.P., kand. med. nauk; BRAYTSEV, V.R., prof.; DEYNEKA, I.Ya., prof.; DYSKIN, Ye.A., kand. med. nauk KAZANSKIY, V.I., prof.; KARAVANOV, G.G., prof.; LEVIN, M.M., prof.; MAKSIMENKOV, A.N., prof.; MAYAT, V.S., prof.; NAPALKOV, P.N., prof.; ROZANOV, B.S., prof.; RUSANOV, A.A., prof.; RUSANOV, G.A., kand. med. nauk; FILATOV, A.N., prof.; CHUKHRIYENKO, D.P., prof.; SHILOVTSEV, S.P., prof.; PETROVSKIY, B.V., prof., otv. red.; MEL'NIKOV, A.V., prof., red. toma; SUVOROVA. T.A., dots., red.; MIROTVORTSEVA, K.S., red.; RULEVA, M.S., tekhn. red.

[Multivolume manual on surgery] Mnogotomnoe rukovodstvo po khirurgii. Moskva, Medgiz. Vol.7. [Surgery of the abdominal wall and organs of the abdominal cavity, the stomach and intestines] Khirurgiia briushnoi stenki, organov briushnoi polosti-zheludka i kishechnika. 1960. 746 p. (MIRA 15:3)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Braytsev, Petrovskiy, Mel'nikov). 2. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Maksimenkov, Filatov).
(ABDOMEN--SURGERY)

S/148/60/000/010/014/018
A161/A030

AUTHORS: Braynin, I.Ye.; Kharchenko, V.A.

TITLE: Distribution of Stresses in Billets Deformed by Bending and Their Effect on the Formation of Flakes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, No. 10, pp. 139 - 142

TEXT: The effect of stresses on the formation of flakes in 40XH (40KhN) steel (with hydrogen content of 5 $cm^3/100$ g) had been studied previously (References 1 and 2) (Ref. 1 - Braynin, Kharchenko and Kondrashov, "Stal'", 1958, No. 4; Ref. 2 - same authors, "Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya", 1958, No. 12). It had been stated that flakes always formed along the fibers and parallel to the axis in forgings bent 12 and 22°. Flakes were absent in the inner spread zone and the outer stretched zone of the cross section area, and this was explained by the impossibility of hydrogen accumulation in these zones adjacent to the ambient medium where the partial pressure of hydrogen is practically zero. The absence of transverse flakes in billets bent 22° appeared strange. To find an explanation, the deformation of fibers has been ana-

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S/148/60/000/010/014/018
A161/A030

Distribution of Stresses in Billets Deformed by Bending and Their Effect on the Formation of Flakes

lyzed graphically (Fig. 1), and the stresses formed in bending were evaluated by mechanical tests of specimens. The conclusion is made that no crosswise flakes formed under the effect of longitudinal tension stress due to the higher plasticity of the metal along the fibers than across the fibers, and to the insufficient hydrogen content in the billet. As had been revealed in Reference 4 (S.T. Konobeyevskiy, "Zhurnal eksperimental'noy i teoreticheskoy fiziki", No. 13, 1943, p. 200), residual tension stresses have a mechanical effect as well as a stimulating effect on the diffusion, and this causes additional accumulation of molecular hydrogen in dislocations and other grid defects, and of atomic hydrogen in elastically stretched cells at the defects. The recombination of atoms and the formation of hydrogen molecules cause high inner stresses and brittleness, and the formation and propagation of cracks. With a very high hydrogen content in steel artificially saturated with it at high temperatures and pressure, flakes may form under the effect of molecular hydrogen alone, without additional stresses. There are 2 figures and 4 Soviet references.

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S/148/60/000/010/014/018
A161/A030

Distribution of Stresses in Billets Deformed by Bending and Their Effect on the Formation of Flakes

ASSOCIATION: Donetskiy politekhnicheskiy institut (The Donets Polytechnical Institute)

SUBMITTED: November 20, 1959

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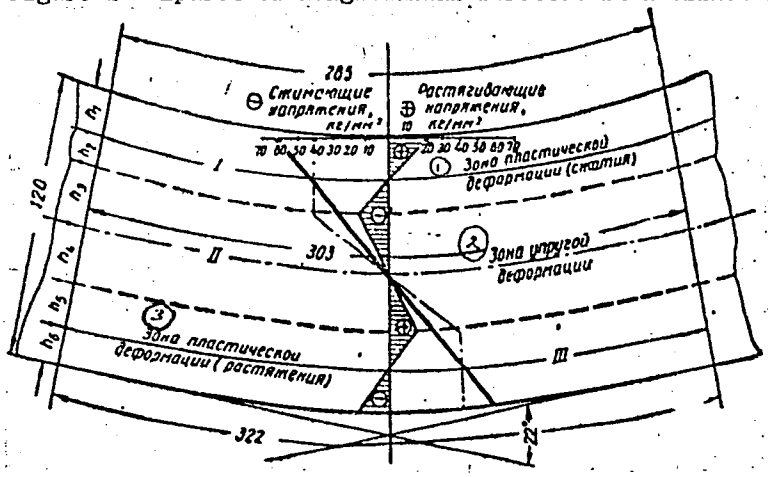
S/148/60/000/010/014/018
A161/A030

Distribution of Stresses in Billets Deformed by Bending and Their Effect on the Formation of Flakes

Figure 1: Epures of longitudinal stresses in a billet deformed by bending.



═══ basic stresses;
-·-·-· work stresses;
——— residual stresses;
θ - compression stresses, kg/mm²;
Θ - tension stresses;
① - zone of plastic deformation (compression);
② - zone of elastic deformation;
③ - zone of plastic deformation (tension).

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BRAYNIN, I. Ye

PHASE I BOOK EXPLOITATION SOV/5511

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Metallovedeniye i termicheskaya obrabotka (Physical Metallurgy and Heat Treatment of Metals) Moscow, Mashgiz, 1961. 330 p. Errata slip inserted. 5,000 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov UkrSSR. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Kiyevskoye oblastnoye pravleniye.

Editorial Board: M. P. Braun, Doctor of Technical Sciences, I. Ya. Dekhtyar, Doctor of Technical Sciences, D. A. Draygor, Doctor of Technical Sciences, I. S. Kamenichnyye, Engineer, Ye. A. Markov-skiy, Candidate of Technical Sciences, V. G. Permyakov, Doctor of Technical Sciences, and A. V. Chernovol, Candidate of Tech-nical Sciences; Ed.: M. S. Soroka; Tech. Ed.: M. S. Gorncstaypol'skaya; Chief Ed., Mashgiz (Southern Dept.): V. K. Serdyuk, Engineer.

Card 1/10

PURPOSE: This collection of articles is intended for scientific workers and technical personnel of research institutes, plants, and schools of higher technical education.

COVERAGE: The collection contains papers presented at a convention held in Kiyev on problems of physical metallurgy and methods of the heat treatment of metals applied in the machine industry. Phase transformations in metals and alloys are discussed, and results of investigations conducted to ascertain the effect of heat treatment on the quality of metal are analyzed. The possibility of obtaining metals with given mechanical properties is discussed, as are problems of steel brittleness. The collection includes papers dealing with kinetics of transformation, heat treatment, and properties of cast iron. No personalities are mentioned. Articles are accompanied by references, mostly Soviet.

TABLE OF CONTENTS:

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BRAYNIN, I.Ye. (Stalino); SMOLYANITSKIY, Ya.A. (Stalino); SHAPOVALOV, S.I. (Stalino)

Effect of artificial aging on the graphitization of white cast iron. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.1:49-54 Ja-F '61. (MIRA 14:2)

(Cast iron—Metallurgy) (Annealing of)

S/180/61/000/006/012/020
E026/E335

AUTHORS: Braynin, I.Ye., Kharchenko, V.A. and Brusilovskiy, B.A. (Donetsk)

TITLE: The effect of H_2 on the lattice parameter of α-Fe

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no. 6, 1961, 115 - 118

TEXT: The effect of H_2 is studied by observing the displacement of the (211) X-ray reflection in the back reflection region during the electrolysis of a 0.5 mm thick sheet of 0.06% C mild steel in dil. HNO_3. The lattice parameter was found to increase from 2.8673 ± 0.0001 Å to 2.8687 ± 0.0001 Å after an electrolysis of 24 hours, indicating that H_2 is taken into solution in the Fe lattice. It is pointed out that the main factors in such determinations are: to retain the H_2 in the Fe lattice before the parameter is

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The effect of H_2 ....

measured; an accurate method of measurement of the lattice parameter and low porosity and non-distortion of the specimen surface. It is suggested that previous diversity of opinion on this subject is due to insufficiently close control of one or more of the above factors.
There are 5 figures, 1 table and 8 references: 7 Soviet-bloc and 1 non-Soviet-bloc.

SUBMITTED: January 30, 1961

Card 2/2

S/148/61/000/006/012/013
E071/E480

AUTHORS: Braynin, I.Ye., Budinshteyn, R.I.

TITLE: Industrial experiments on patenting rope wire in two baths

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1961, No.6, pp.139-144

TEXT: The work was carried out in order to determine the most suitable operating conditions for the patenting process in two baths and to establish its influence on the mechanical properties of rods and wire drawn from them. The patenting conditions differed from those previously described (Ref.2: V.Ya.Zubov, Byulleten' Glavmetiza, 1939, No.4, 5); the temperature of the first bath was higher and rods were retained in it for a shorter time. The experiments were carried out in a usual 24-muffle furnace, 16 m long, fired with oil and fitted with two baths, close to each other. Carbon steels 50 and 70 (chemical composition is given) were used. Various modifications of patenting conditions in two baths were studied on rods of 4.5 mm diameter which were then drawn into wire of 2.2 mm diameter. In order to explain some specific features of austenite transformation on patenting in two

Industrial experiments ...

baths, some laboratory experiments were carried out. In these, wire specimens of 4.5 mm diameter were heated in an electric tube furnace to 920°C, then a part of the specimens was cooled in a salt bath at 445°C in 38 seconds and another part of the specimens in a bath at 320°C in either 6 or 10 seconds. On the basis of the experimental results, the following conclusions were drawn. 1) Under usual conditions of patenting wire from steels 50 and 70 in one bath, the austenite is decomposed thermokinetically in the upper subcritical range before the wire reaches the bath temperature. The structure of the wire in this case consists of trostosorbite, and in steel 50 some individual thread-like separations of ferrite along the grain boundaries are obtained. 2) Patenting of wire in two baths (the first at a temperature of 320 to 350°C, the second at 460 to 500°C) increases the degree of supercooling of austenite which decreases or eliminates completely the separation of ferrite even in the outer, somewhat decarburized zone of semi-fabricated products. In addition, a decrease in the temperature range of austenite decomposition aids partial or complete transformation of austenite into the upper

increases in semifabricated products. The latter effect is caused by the fine grain structure and absence of ferrite precipitates (the separation of ferrite is inhibited by an increase in the cooling rate in the first bath).
5) Patenting by the two baths technique may be advantageous for wire of large diameter (7 to 9 mm) and also for wire of a small diameter (below 4.5 mm) made from softer carbon steels, when the possibility of supercooling of austenite in the first bath below 550°C is excluded. A.V.Tursunov, V.A.Kharchenko, B.D.Khokhryakov, A.T.Semkin, N.G.Filatov, A.G.Kareva and others participated in the work. There are 2 figures, 2 tables and 3 references: 2 Soviet and 1 non-Soviet. The reference to an English language publication reads as follows: M.Gensamer, E.B.Plarsell, W.S.Pellini, J.R.Low, Trans. Amer. Soc. for Metals, 30, 1942, pp.983-1019.

ASSOCIATION: Donetskiy politekhnicheskiy institut
(Donets Polytechnical Institute)

SUBMITTED: July 18, 1960

S/137/62/000/001/140/237
A052/A101

AUTHORS: Braynin, I. Ye., Gubenko, N. V.

TITLE: The effect of thermal hardening on mechanical properties and ageing tendency of low-carbon steel

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 35, abstract 1I239 (V sb. "Stal'", Moscow, Metallurgizdat, 1961, 395 - 411)

TEXT: The effect of heat treatment on mechanical and magnetic properties and microstructure of МСт.3кп (MSt.3kp) steel before and after strain ageing (exposure of samples stretched by 10% to 250°C during 1, 3, 8, 24 and 50 hours) was investigated. The heat treatment consisted of hardening at 900°C and tempering at different temperatures and rates of cooling (in water or with the furnace). The microstructure was investigated with an optical and electronic microscope with a magnification of 500 and 5,000 respectively. It is established that the tempering conditions affect the tendency to ageing, that is the changes of properties after it; these changes appear in the first 1 - 3 hours of exposure, and thereafter the characteristics remain on the almost same level as before. The optimum combination of strength and ductility was achieved after water har-

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S/137/62/000/001/140/237
A052/A101

The effect of thermal hardening on...

dening at 900°C and tempering at 450°C during 1 hour with water cooling. There are 34 references.

Ye. Bukhman

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/003/024/191
A006/A101

18.8300

AUTHORS: Braynin, I. Ye., Kharchenko, V. A.

TITLE: The part of hydrogen and stresses in flake formation

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 46-47, abstract 3V280 ("Tr. Donetsk. politekhn. in-ta", 1961, v. 56, 5-25)

TEXT: It is supposed that at an H content in steel < 1 ml/100 g, flakes are not being formed. According to the nature of H_2 liberation from them after solidification and holding at room temperature, the steels, as to flake sensitivity, are divided into the following 3 groups: 1) in Fe, soft carbon steel and steel with high Nb content, higher rates of diffusion and H_2 liberation are observed; at slow cooling, H_2 is easily liberated from these metals at relatively high temperatures, without causing considerable stresses; 2) high-alloyed steels of the perlite and perlite-martensite class show lesser H_2 liberation rates in solid state, and high flake sensitivity; 3) in high-alloy steels (ferrite, austenite and carbide type high-speed grades), H_2 is not liberated from the solid metal; this is explained by the stability of the solution oversaturated with H_2. These steels are not prone to flake formation. Soft carbon steels are

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The part of hydrogen and stresses in flake ...

less flake sensitive not only because of a higher H_2 liberation rate as a result of higher temperatures of austenite to ferrite transformation, but also as a result of a lesser H content, due to a higher O content when the steel is teemed from the furnace. Moreover, the lesser flake sensitivity of soft carbon steels is caused by their higher viscosity and ductility as compared with medium and high-carbon steels. The authors mention a discussion on the mechanism of flake formation. Summing up the results of this discussion, the authors draw the following conclusions: 1) Flakes in steel are formed during the simultaneous effect of molecular H_2 in the "slits" of mosaic structure domains over the accumulation spots of dislocation groups, and elastic tensile stresses developed at the "slit" tops; as a result, local concentration with hydrogen takes place by means of ascending diffusion with subsequent embrittlement of the metal resulting from the rearrangement of H atoms into molecules; 2) at a conventional H content in the steel (5 - 10 ml/100 g) the basic part of additional stresses (structural, thermal and mechanical ones) consists not only in their mechanical effect, but also in the formation due to their effect of accumulated dislocation groups and stimulated conditions of ascending H_2 diffusion. There are 55 references.

G. L.

[Abstracter's note: Complete translation]
Card 2/2

S/137/62/000/004/119/201
A052/A101

19.1200

AUTHORS: Braynin, I. Ye., Shkuratov, F. I., Tserikh, Z. V.

TITLE: The effect of the summary Ti and Al content on mechanical properties of ЭИ 437 A (EI437A) alloy

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 54, abstract 4I321 ("Tr. Donetsk. politekhn. in-ta", no. 56, 1961, 147 - 150)

TEXT: 137 heats in which the summary Ti and Al content varied from 2.85 to 3.65% were investigated. 3 samples out of each heat were tested after a preliminary heat treatment under the following conditions: air hardening at 1,080°C after an 8-hour exposure and 16-hour tempering at 700°C with air cooling. The results of two kinds of tests at 700°C are presented: short-time tensile test (σ_b = 62 - 78 kg/mm^2, δ = 7.2 - 20%, ψ = 13.7 - 24%) and long-time tensile test to evaluate the time until the failure of the sample at a constant load of 40 kg/mm^2; this time varies from 50 to 130 hours. At a short-time rupture the imprint diameter and ductility properties decrease with the increase of the summary Ti and Al content; σ_b at a short-time rupture and the time until failure

The effect of the summary...

at a long-time rupture increase with the increase of Ti plus Al sum up to 3.55%. A further increase of Ti plus Al sum leads to some decrease of these characteristics. The change of mechanical characteristics depending on the change of Ti plus Al sum is more or less reliably characterized by the section of the curves contained between the values of Ti plus Al sum from 3.25 to 3.45%.

T. Rumyantseva

[Abstracter's note: Complete translation]

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BRAYNIN, I.Ye.

Mechanism and temperature of flake formation. Izv. vys. ucheb. zav.; chern. met. 4 no.10:104-107 '61. (MIRA 14:11)

1. Donetskiy politekhnicheskiy institut.
(Steel--Hydrogen content) (Dislocations in metals)

BRAYNIN, I.Ye.; SELEZNEV, N.N.

Mechanism of bright zone formation on the surface layer of soft steel under the effect of dry friction. Fiz. met. i metalloved. 12 no.2:260-264 Ag '61. (MIRA 14:9)

1. Donetskiy politekhnicheskiy institut.
(Surface hardening)

BRAYNIN, I.Ye.

Role of strain in the formation of flocs. Fiz. met. i metalloved. 12 no.3:322-325 S '61. (MIRA 14:9)

1. Donetskiy politekhnicheskiy institut.
(Steel--Metallography)
(Dislocations in metals)

S/148/62/000/008/003/009
E111/E435

AUTHORS: Braynin, I.Ye., Kharchenko, V.A., Ivanov, F.I.

TITLE: Kinetics of the decomposition of supercooled austenite in chromium-nickel-molybdenum steel in two-stage isothermal cooling

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no.8, 1962, 100-107

TEXT: The kinetics of decomposition of supercooled austenite during two-stage isothermal cooling in relation to the temperature of the first stage was investigated for the steels type 34XH3M (34KhNZM) and 35XHM(35KhNM), which have the following composition

		C	Mn	Si	Cr	Ni	Mo	P	S
1	34XH3M	0,37	0,73	0,25	0,98	2,90	0,34	0,016	0,018
2	34XH3M	0,32	0,63	0,27	0,83	2,90	0,30	0,025	0,025
3	35XHM	0,36	0,62	0,21	0,99	1,36	0,24	0,023	0,022

After austenizing at 850 and 1200°C, a part of the specimens

was subjected to single-stage cooling with different isothermal holding, a second part was cooled by the two-stage method with stage I holding at 350, 300, 250 and 200°C (as in the single-stage treatment) and stage II holding at 650°C. After all heat treatments, the specimens were water quenched and the quantity of untransformed austenite was determined by the martensite content in the final structure. Microstructure, hardness and micro-hardness were investigated and magnetic measurements were made. Conclusion: to accelerate decomposition of supercooled austenite in two-stage isothermal cooling of chromium-nickel-molybdenum steels, in stage I to 200 - 250°C (somewhat below the temperature of the start of the martensite transformation) cooling should be quicker. As a result of this, decomposition of untransformed austenite during heating to the stage II temperature and subsequent holding at 650°C is accelerated. In a number of cases, for instance in large forgings, this permits preventing flake formation. There are 2 figures and 3 tables.

ASSOCIATION: Donetskiy politekhnicheskiy institut (Donets Polytechnical Institute)

SUBMITTED: June 17, 1961

BRAYNIN, I.Ye.; KHARCHENKO, V.A.; IVANOV, F.I.

Kinetics of the decomposition of undercooled austenite in chromium-nickel-molybdenum steel during two-stage isothermal cooling. Izv. vys. ucheb. zav.; chern. met. 5 no.8:100-107 '62. (MIRA 15:9)

1. Donetskiy politekhnicheskiy institut.
(Chromium-nickel steel—Metallography)
(Phase rule and equilibrium)

BRAYNIN, I.Ye.; GUBENKO, N.V.

Effect of preliminary hardening on the deformation aging processes in low-carbon steel. Fiz. met. i metalloved. 16 no.3:444-447 S '63. (MIRA 16:11)

1. Donetskiy politekhnicheskiy institut.

[redacted], .Ye.; LAD'YANOV, I.N.; [redacted], N.M.; BABIY, A.S.; [redacted], V.M.; [redacted], V.G.; [redacted], P.I.

Production of 33S silicon reinforcement steel. Met. i gornor.d. prom. no.6:67-69 N-D '64. (MIRA 18:3)

BRAYNIN, I. Ye.; SMOLYANITSKIY, Ya. A.; SHAPOVALOV, S. I.

Effect of preliminary heat treatment on the graphitization process of white cast iron. Izv. vys. ucheb. zav.; chern. met. 7 no. 5:130-134 '64. (MIRA 17:5)

1. Donetskiy politekhnicheskiy institut.

BRAYNIN, I.Ye.; LAD'YANOV, I.N.; TROSKUNOV, Ya.L.; KATTENBERG, A.K.; TUPIKO, V.M.

Nature of the brittleness of highly resistant reinforcement steel. Izv. vys. ucheb. zav.; chern. met. 7 no.10:127-131 '64. (MIRA 17:11)

1. Donetskiy politekhnicheskiy institut i Donetskiy metallurgicheskiy zavod.

L 30042-65 EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b) Pu-4 IJP(c) MJW/JD/JG

ACCESSION NR: AP5003934 S/0304/65/000/001/0052/0053

AUTHORS: Braynin, I. Ye. (Doctor of technical sciences); Kharchenko, V. A. (Candidate of technical sciences); Kondrashev, A. I. (Engineer); Gashutin, V. P. (Engineer); Pilyushenko, V. L. (Engineer)

TITLE: Effects of additional alloying on the mechanical properties of low-carbon chromium-manganese cast steels

SOURCE: Mashinostroyeniye, no. 1, 1965, 52-53

TOPIC TAGS: steel, chromium steel, manganese steel/ 15KhGL steel, 15KhGFL steel

ABSTRACT: To find nickel-free cast steels with high impact strength, the effect of additional alloying on the mechanical properties of low-carbon Cr-Mn steels was investigated. The alloys were melted in a 30-kg induction furnace and specimens from the ingot periphery were annealed at 900-920C for 4 hours, while the specimens from the top and bottom parts of the ingot were normalized and tempered at 600C for 1 hour. The alloy compositions are shown in Table 1 and the mechanical properties in Table 2 on the Enclosures. It was found that alloying steel 15KhGL with Mo, V, Cu, Ti has no effect on strength and ductility and decreases the impact strength; Nb worsens all properties; V and Ti increase strength but significantly decrease

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L 30042-65

ACCESSION NR: AP5003934

ductility and impact strength. Small additions of Zr significantly increase
ductility and impact strength. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 02 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

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L 30042-65

ACCESSION NR: AP5003934 ENCLOSURE: 01

Table 1.

Chemical composition of steels, %

Designation	C	Mn	Si	S	P	Cr	Mo	Ti	V	Cu	Nb	Zr
15KhGL	0,17	1,00	0,32	0,039	0,018	1,10	—	—	—	—	—	—
15KhGFL	0,16	0,94	0,21	0,031	0,016	1,28	—	—	0,18	—	—	—
15KhGML	0,16	0,74	0,03	0,051	0,027	1,05	0,27	—	—	—	—	—
15KhGDL	0,17	1,04	0,23	0,036	0,042	1,14	—	—	—	0,78	—	—
15KhGBL	0,14	0,95	0,14	0,035	0,018	1,06	—	—	—	—	0,041	—
15KhGTL	0,18	0,87	0,21	0,052	0,011	0,14	—	0,05	—	—	—	—
15KhGT2L	0,16	1,06	0,20	0,032	0,013	1,29	—	0,10	—	—	—	—
15KhGTFL	0,18	1,14	0,10	0,034	0,129	1,68	—	0,05	0,13	—	—	—
15KhGMDL	0,13	0,72	0,14	0,037	0,032	0,96	0,33	—	—	0,90	—	—
15KhG2L	0,15	2,30	0,19	0,033	0,018	—	—	—	—	—	—	—
15KhG2TL	0,16	1,55	0,42	0,025	0,009	1,10	—	0,02	—	—	—	—
15KhG2TsL	0,16	1,82	0,15	0,011	0,028	0,95	—	—	—	—	—	0,06
15KhGL	0,23	0,95	0,29	0,041	0,027	1,08	—	—	—	—	—	—
15KhGTsL	0,19	0,72	0,35	0,031	0,017	1,14	—	—	—	—	—	Trace
15KhGL*	0,20	0,95	0,25	0,030	0,019	1,04	—	—	—	—	—	—

* "mishmetal" with 0.15-0.20% Ce was introduced

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L 30042-65

ACCESSION NR: AP5003934 ENCLOSURE: 02

Table 2. Mechanical properties of experimental steels after heat-treating and normalizing

Designation	After heat treating						After normalizing and tempering					
	σ_t KG/mm^2	$\sigma_в$ KG/mm^2	δ%	ψ%	$a_н$ KGM/cm^2	HB	σ_t KG/mm^2	$\sigma_в$ KG/mm^2	δ%	ψ%	$a_н$ KGM/cm^2	HB
15KhGL	48,7	62,3	21,2	62,3	13,4	195	31,0	53,0	31,0	64,3	13,3	143
15KhGFL	48,0	62,4	18,4	58,2	8,1	196	41,8	59,2	28,4	66,0	12,1	170
15KhGML	44,2	60,8	22,0	61,7	7,7	192	30,6	52,0	29,4	62,3	10,9	149
15KhGDL	50,0	62,8	21,2	61,0	8,2	196	41,5	57,7	25,4	60,8	9,2	163
15KhGBL	29,0	48,0	27,0	58,6	6,2	140	32,3	45,6	34,4	69,3	9,3	131
15KhGTL	47,7	61,0	20,0	41,6	5,8	192	35,0	53,2	28,0	50,0	6,4	149
15KhGT2L	50,3	63,3	21,0	49,7	5,1	196	36,3	56,2	29,0	61,0	7,2	156
15KhGTFL	61,2	74,2	12,0	31,5	1,1	228	38,8	66,8	22,0	32,5	3,4	187
15KhGMDL	48,8	61,7	20,8	61,0	11,0	207	37,0	56,2	25,6	61,0	11,7	170
15KhG2L	54,8	65,0	15,6	36,3	0,7	202	53,2	63,7	15,0	29,9	2,3	196
15KhG2TL	44,0	61,0	21,0	48,3	6,3	179	39,0	59,5	24,8	42,7	7,5	156
15KhG2TsL	49,0	62,5	20,9	60,2	11,0	187	33,7	54,3	26,9	64,3	15,0	163
15KhGL	50,2	66,3	19,8	48,7	6,2	206	31,0	57,2	26,6	48,7	5,3	159
15KhGTsL	46,5	61,6	23,6	58,3	10,9	194	30,3	52,4	28,2	60,3	10,4	145
15KhGL*	45,4	60,8	24,6	64,7	15,2	179	32,0	54,4	30,0	61,5	15,7	149

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* modified with "mishmetal"

26858
S/021/60/000/008/007/011
D210/D305

10.1500

AUTHORS: [redacted]zoyanov, O.F., and Braynin, M.I.

TITLE: Theoretical grounds of the spark method of stream visualization

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, no. 8, 1960, 1059 - 1063

TEXT: The aim of the paper is to show that the spark method of visualization of air currents is under certain conditions sufficiently accurate for practical purposes. By the known Stokes formula a burning particle falls down with a velocity

$$V_n = 2/9 \frac{r^2 \gamma}{\mu} \qquad (1)$$

which is of 0.2 m/sec order. But if the hot air itself moves up with a velocity approaching 0.2 m/sec then the particle is at rest

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Theoretical grounds of the ...

relative to the cold air. The author considers two cases: 1) The possibility of soaring of burning particles in the cold air. The equations of motion and conductivity are presented in

$$\rho \frac{dV}{dt} = (\rho_0 - \rho)g \quad (3), \qquad \frac{dT}{dt} = D\frac{d^2T}{dz^2} \quad (4)$$

$$\text{and} \quad \frac{\rho_0}{\rho} = \frac{T}{T_0} \quad (5)$$

with boundary condition for $-\infty < z < a$

$$z = -a \quad T = T_{air}, \quad (6)$$

$$z = -\infty \quad T = T_0, \; V = 0. \quad (7)$$

Introducing new variables $a = z/z$, $v = V/V$, where $v = D/a$, $\Phi = \vartheta/\bar{\vartheta}$ where $\Phi = -D^2/a^3 g$, where $\vartheta = T/T_0 - 1$ and rewriting the equations

Card 2/5

Theoretical grounds of the ...

in the new form, the author obtains the solution:

$$\vartheta = \vartheta_{air} - 0.4(\bar{z} + 1) \qquad (12)$$

and

$$\bar{V} = \frac{1.6}{\vartheta_{air}^{-1/3} - 0.4(\bar{z} + 1)} . \qquad (13)$$

The velocity of the particle near to the surface z = - a will be

$$V = 1.6 \sqrt[3]{Dg_{air}} \qquad (14)$$

or V = 0.18 m/sec, i.e. $V \approx V_{air}$; this means that a particle with a diameter 10^{-4} m and burning temperature 600°C will be suspended in air, balanced by convective currents. 2) Centrifugal effect of particles with small diameters. If the particle balanced in a vertical direction has angular velocity with respect to the OY axis, then the central force

$$F_{cf} = - \rho \omega_o^2 \bar{r} \tau;$$

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Theoretical grounds of the ...

and the air resistance $F_{res} = -6\pi a\mu(\bar{V} - \bar{\omega}_o \cdot \bar{r})$. By Newton's law it will be therefore $\frac{d\bar{V}}{dt} = \frac{\rho}{\rho} - \omega_o^2\bar{r} - \frac{9}{2}\frac{\mu}{\rho a^2}(\bar{V} - \bar{\omega}_o \cdot \bar{r})$. Introducing x, y coordinates, and new variables

$$\frac{1}{\omega_o} = \frac{t}{\bar{t}},\ x_o = \frac{x}{\bar{x}},\ y_o = \frac{y}{\bar{y}},$$

and

$$\frac{9}{2}\frac{\rho}{\rho}\frac{\nu}{a^2\omega_o} = A_1. \qquad (20)$$

The equations were transferred to

$$\ddot{\bar{x}} + A_1\dot{\bar{x}} + A_1\bar{y} = 0 \ (21), \quad \ddot{\bar{y}} + A_1\dot{\bar{y}} - A_1\bar{x} = 0 \qquad (22)$$

with boundary condition $\bar{x} = 1$, $\dot{\bar{x}} = 0$, $\bar{y} = 0$, $\dot{\bar{y}} = 1$ for $t = 0$. If $A_1 \gg 1$, then $\dot{\bar{x}} + \bar{y} = 0$ and $\dot{\bar{y}} - \bar{x} = 0$, or $\ddot{\bar{x}} + \bar{x} = 0$, and $\ddot{\bar{y}} + \bar{y} =$

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Theoretical grounds of the ...

= 0, or $\bar{x}$ = cos $\bar{t}$ and $\bar{y}$ = sin $\bar{t}$. This means that the particles move in circles or that the full capture of particles by moving air takes place. There are 3 Soviet-bloc references.

ASSOCIATION: Instytut hirnychoyi spravy AN URSR (Institute of Mining AS UkrSSR)

PRESENTED: by O.N. Shcherban', Academician AS UkrSSR

SUBMITTED: June 15, 1959

X

Card 5/5

SUKHAREVSKIY, V.M.; BRAYNIN, M.I.

Modeling the spraying and transportation of liquid in mines. Sbor. trud.Inst.gor.dela AN URSR no.8:138-147 '61. (MIRA 15:2)
(Coal mines and mining—Fires and fire prevention)
(Atomization)

BALANOVSKIY, V.F., inzh.; BRAYNIN, M.I., inzh.

Explosion problem in a methane and dust atmosphere. Shakht. stroi. 5 no.10:17 O '61. (MIRA 16:7)

1. Institut gornogo dela AN UkrSSR.
(Mine explosions)

SUKHARKVSKIY, V.M.; SARANCHUK, V.I.; BRAYNIK, M.I.

Investigating the transportation of atomized liquid by a ventilating current. Sbor. trud. Inst. gor. dela AN URSR no.13 113-123 '63 (MIRA 17:7)

BASKUTIS, P., prof., red.; YANITSKIS, I.[Janickis,I.], doktor khim. nauk, prof., red.; VIDMANTAS, Yu.[Vidmantas, J.], prof., otv. red.; STANAYTIS, I.[Stanaitis, I.], starshiy prepodavatel'., red.; BRAYNIN, S., kand. istor. nauk, dots., red.; INDRYUNAS, I., [Indriunas, I.], doktor tekhn. nauk, prof., red.; LASINSKAS, M., kand. tekhn. nauk, red.; NOVODVORSKIS, A., kand. tekhn. nauk, dots., red.; PESIS, R.[Pesys, R.], kand. tekhn. nauk, dots., red.; SADAUSKAS, T., dots., red.; SHESHEL'GIS, K.[Seselgis, K.], kand. arkh. dots., red.; VASAUSKAS, S., kand. tekhn. nauk, dots., red.; ZDANIS, Yu. [Zdanis, J.], kand. tekhn. nauk, red.; GRIGALYUNAS, B. [Grigaliunas,B], red.; EYTUTIS, V.[Eitutis, V.], red.; VIDMANTAS, Yu.[Vidmantas,J.], red.; NAUYOKAS, I. [Naujokas,I.], tekhn. red.

[Materials of the 5th Scientific Technical Conference of Students of Institutions of Higher Learning of the White Russian S.S.R., Latvian S.S.R., Lithuanian S.S.R. and Estonian S.S.R.] Trudy Nauchno-tekhnicheskoi konferentsii studentov vysshikh uchebnykh zavedenii Belorusskoi SSR, Latviiskoi SSR, Litovskoi SSR i Estonskoi SSR, 5th. Kaunas, Izd. Kaunasskogo politekhn. in-ta, 1961. 205 p. (MIRA 14:12)

1. Nauchno-tekhnicheskaya konferentsiya studentov vysshikh uchebnykh zavedeniy Belorusskoy SSR, Latviyskoy SSR, Litovskoy SSR i Estonskoy SSR, 5th.
(Science--Congresses) (Technology--Congresses)

BRAYNIN, S.A., inzh.; DOMBROVSKIY, Ye.I., inzh.; KHOMUTSKAYA, G.A., inzh.

Using pneumatic tubes for the transportation of metal samples. Mekh. i avtom. proizv. 19 no.9:6-7 S '65. (MIRA 18:9)

BRAYNIN, S.A.; KIRPICHNIKOV, V.M.

Level signaling device with cold cathode thyratron. Lit. proizv. no.2:10-11 F '63. (MIRA 16:3)
(Level indicators) (Thyratrons)

BRAYNIN, S.A., inzh.; SERGEYEVA, A.A., inzh.; PERTSOVSKIY, V.N., inzh.

Automatic control of the preparation of mixes. Mekh. i avtom. proizv. 19 no.8:1-5 Ag '65. (MIRA 18:9)

BRAYNIN, Teodor L'vovich; inzh.; IVANOV, Viktor Viktorovich, inzh.; KOVARSKIY, A.I., nauchnyy red.; DEMINA, G.A., red.; RAKOV, S.I., tekhn.red.

[Installation and assembly of lighting and power networks] Ustroistvo i montazh osvetitel'nykh i silovykh setei. Moskva, Vses.uchebno-pedagog.izd-vo Trudrezervizdat, 1959. 253 p. (MIRA 13:3)

(Electric networks)

BRAYNIN, Teodor L'vovich; IVANOV, Viktor Viktorovich; KHROMCHENKO, G.Ye., nauchnyy red.; SHUMILOVA, Ye.M., red.; PERSON, M.N., tekhn. red.

[Construction, installation, and operation of electric lighting and power distribution networks] Ustroistvo, montazh i ekspluatatsiia osvetitel'nykh i silovykh setei. Izd.2., ispr. i dop. Moskva, Proftekhizdat, 1963. 295 p. (MIRA 16:7)

(Electric networks)
(Electric power distribution)

AUTHOR: Braynin, V.

TITLE: Ferroresonant Voltage Stabilizers
(Ferrorezonansnyye stabilizatory napryazheniya)

PERIODICAL: Radio, 1957, Nr 2, pp 53-55 (USSR)

ABSTRACT: Editorial note: Ferroresonant voltage stabilizers are widely used now because of their simple construction and highly stable output voltage. However, they can be used only in those supply networks that have a strictly constant working frequency. The ferroresonant stabilizers described in this article and in 107-57-2-49/56 , are suitable for TV sets, radio receivers, and similar equipment. The first stabilizer, described in this article, was developed by V. Braynin and can carry loads up to 320 w. The other article (107-57-2-49/56), describes only the construction of a second stabilizer developed by V. Bol'shov. Its operating principle was detailed in the article "Ferrorezonansniye stabilizatory" (Ferroresonant Stabilizers) by N. Mitrofanov, "Radio", 1952, Nr 7. V. Bol'shov's stabilizer has an output of 250 w. Both stabilizers use chokes and autotransformers built of standard transformer-steel punchings.

Article proper: An autotransformer with a group of capacitors connected

Ferroresonant Voltage Stabilizers

across its terminals constitute the regulating unit of the stabilizer. The choke coil has three windings, two primary and one secondary. Input voltages are 127 or 220 v AC; output voltages are also 127 or 220 v AC. The stabilized voltage fluctuates ±2% at a primary voltage variation of ±20%. The efficiency of the stabilizer is 75% to 80%. Its size is 150 x 350 x 200 mm, its weight, 9 to 10 kg. A complete circuit diagram, parts data, construction aids, instructions for adjustment, and characteristics of the stabilizer are supplied.

There are 5 figures and 1 Soviet reference in the article.

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